Perspective on IFR R&D at Padua

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R&D plans

- characterize SiPM produced by IRST
  - IRST: research institute founded by Trentino Alto Adige region
  - IRST is interested in developing a device to be used in the IFR

54 packaged IRST SiPMs

IRST SiPM

- breakdown voltage: 31 V
- 10^6 gain at 3 V above breakdown voltage
- low optical cross section between micro-cells
- dark count of the order of 1-2 MHz at 3 V above breakdown voltage

status in Padova

- acquired some hardware for lab tests:
  - laser Advanced Laser Diode Systems PiL040 @ 409 nm with EIG1000D control unit
  - Ortec 9327 amplifier
  - Becker & Hickl SPC-130 TDC (8 ps FWHM / 5 ps rms)
  - Agilent DSO80604B 6GHz oscilloscope
  - 2 Photonis XA85011/A1 photomultipliers
    - 10 mm pore
    - proximity focus gap

near future plan

- measure SiPM characteristics with LED and laser and compare it with that obtained with an Hamamatsu SiPM
- study SiPM response with scintillators and with a wire chamber with optical readout developed in Padova
- interact with IRST for SiPM development